About the polarization of the first order rainbow generated through a sequential mechanism

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**Abstract**

After the cartesian emergence from a first water droplet, we can assume that the ray of light enters, at cartesian incidence too, into a second (and, then, into a third, a fourth, a.s.o.) water droplet. For such a route, with arbitrarily polarized incident light, we investigate the dependence of the degree of polarization for the main rainbow on the size of the water droplets. All the calculations are developed within the framework of the Khare-Nussenzveig (KN) theory of the rainbow.